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(54) Title: A METAL ALLOY FOR ELECTRICAL CONNECTIONS WITH NUL CONTACT TENSION

(57) Abstract: A metal alloy for realizing electrical connections with practically nul contact tension, comprising the following components, possibly alternative, with the relative percentages: tin 45-95 %, antimony 1-20 %, copper 1-20 %, lead 0-50 %, silver 0-20 %, gold 0-10 %, rhodium 0-15 %, palladium 0-10 %, beryllium 0-20 %.

## **"A METAL ALLOY FOR ELECTRICAL CONNECTIONS WITH NUL CONTACT TENSION"**

The present invention concerns a new metal alloy for realizing electrical contacts with a practically nul contact tension.

It is well known that pure metals, like copper and silver, are excellent electric conductors and are not very expensive.

The transmission of small and variable electric signals, like e.g. audio signals, proves - by way of experiment - to be a phenomenon quite more complicated than it was known to science, because there are phenomena which can be heard by the listener but that may not be taken by any instrument, like tone-colours, the effect of space and the roughness.

Infact, it has been noted that the distortion at audio high frequencies or the 'furred' sound in audio medium frequency, both caused by the copper used in the cables, can be heard, and the silver cables makes it perceive immediately.

Therefore, it is necessary to eliminate above mentioned inconveniences shown by pure metals, all the more so as even the use of silver only determines a very clean sound, not distorted but somewhat faint and quite too metallic.

A plurality of metals disposed in series or in parallel may produce satisfactory results, obtaining the compensation of the different tone-colours; but this result has proved to be expensive due to the indispensable need of gold, and difficult to working.

At present, even filters or compensation nets are used and, in general, the makers try to compensate the different tone-colours or distortions produced by the component metals and by the metals in the cables with excellent results, even if they are still compensations.

The phenomenon of the distortion of the small electric signals may be explained with the contact tensions that arise in the welding points or in the contact points between the different metals.

No metal is free from such phenomenon.

As said distortion is caused by discontinuity or by a tension step, that is the limit to the resolution of the small entity electric signals, the need of the elimination thereof, so as to obtain a greater resolution, appears evident.

Above described aim may also be reached by using metal alloys: in fact, it is known that an alloy loses the features of its components for assuming a typical structure: bronze, e.g., has its own molecular structure and its typical sonority absolutely different from the one of its components.

The alloy according to the present invention approaches as much as possible a null contact tension; it may be welded by means of the known procedures used for tin-lead welding; it does not break; it has a considerable malleability; it does not oxidize very easily and consists of the following metals in the relative percentages:

tin	45-95%
antimony	1-20%
copper	1-20%
lead	0-50%
silver	0-20%
gold	0-10%
rhodium	0-15%
palladium	0-10%
beryllium	0-20%

Each additive changes the sonority of the cable obtained with the alloy in a range of different harmonies, according to the needs.

The tests done with the wires obtained with above described alloy have shown that the resolution increases considerably as - in the field of audio and video, e.g. - the parameters connected thereto also increase: surround, micro-contrast, colour.

In an embodiment, an alloy according to the present invention, with a reduced number of components but extremely efficient for what concerns the acoustic result, may consist of:

tin	95%
antimony	4%
copper	<u>1%</u>
total,	100%

**CLAIMS**

1. A metal alloy for realizing electrical connections with practically null contact tension, **characterized** in the components with the relative percentages.

tin	45-95%
antimony	1-20%
copper	1-20%
lead	0-50%
silver	0-20%
gold	0-10%
rhodium	0-15%
palladium	0-10%
beryllium	0-20%

2. A metal alloy according to claim 1, **characterized** in the presence of:

tin	95%
antimony	4%
copper	<u>1%</u>
total,	100%

# INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 C22C13/00 C22C13/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C22C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

PAJ, WPI Data, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DD 220 915 A (MANSFELD KOM W PIECK FI F NE M) 10 April 1985 (1985-04-10) page 6; example 1 ---	1
X	DE 25 35 616 B (DEUTSCHE GOLD- UND SILBER-SCHNEIDEANSTALT) 22 July 1976 (1976-07-22) claim 1 ---	1
X	PATENT ABSTRACTS OF JAPAN vol. 017, no. 352 (M-1439), 5 July 1993 (1993-07-05) -& JP 05 050286 A (SENJU METAL IND CO LTD; OTHERS: 01), 2 March 1993 (1993-03-02) abstract; example 4 ---	1
A	WO 97 09455 A (SARNOFF DAVID RES CENTER) 13 March 1997 (1997-03-13) ---	
	-/-	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 94 25634 A (SEELIG KARL F ;LOCKARD DONALD G (US)) 10 November 1994 (1994-11-10) -----	

## INTERNATIONAL SEARCH REPORT

Information on patent family members

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